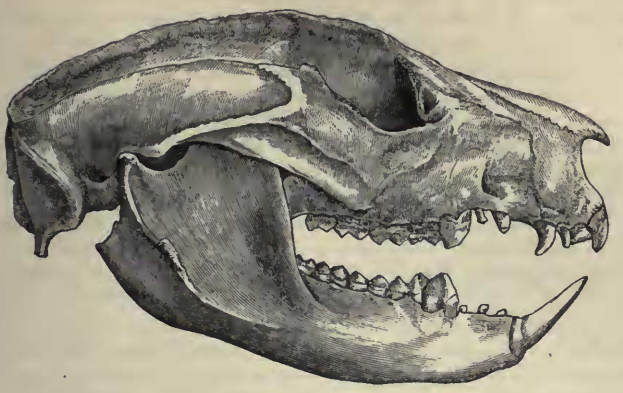

Skull of *Cuscus ornatus* (side view).

In the British Museum there are two young specimens of the genus which I am not able to determine with certainty. They are both of a fulvous-brown colour, and without any streak on the back.

1. Said to come from "Amboyna," and is supposed to be a young *C. orientalis*; the sex is doubtful, but probably a male.

2. The other was sent by Mr. Wallace from Macassar in 1857, and is a young male. I formerly considered it as a variety of *C. celebensis* (P. Z. S. 1858, p. 43); and it is like that species in several particulars; but the want of the dorsal streak is a great peculiarity, which was not so distinctly seen before it was stuffed.

On the Ophidians of the Province of Bahia, Brazil. By Dr. Otho Wucherer, Corr. Memb. (Part II.*)

Of the family of *Coronellidæ* several species of *Liophis* are very common in this province—*Liophis cobella, L. Merremii, L. reginæ,* and *L. conirostris.* The last appears to me to occur only in the vicinity of the city of Bahia. In several collections of Ophidians sent to me from different parts of the province, I never found a single specimen, whilst it is rather common in the vicinity of the city of Bahia. It never attains to the same size as the other species. Some specimens of *L. Merremii* show so constantly certain differences from others, that I feel tempted to consider them as belonging to a distinct species, particularly as those differences are by no means referable to the different age of the individuals; however I shall withhold my suggestions until I shall have collected more materials to substantiate them. *Erythrolamprus venustissimus,* of the same family, is not unfrequent. It shares with different other snakes the Portuguese name of *Cobra Coral.*

* See Annals, vol. viii. p. 179, for Part I.

The species of the genus *Xenodon*, which have been referred to the family of *Natricidæ*, are allied to *Liophis* in many respects. Their dentition is very similar ; they may all be considered as fresh-water snakes (some species of *Liophis* are called by the Brazilians *Cobras d'agua*), although they are frequently found in dry places and at a distance from the water. They all live on Batrachians, and have this peculiarity in common with the other snakes of the family of *Natricidæ*, that they do not squeeze their prey to death before swallowing it, nor ever coil themselves around it.

I have noticed only two species of *Xenodon*—*X. rhabdocephalus* and *X. colubrinus*.

In a preliminary list of snakes observed by me, given by Dr. Albert Günther, *X. severus* is mentioned ; however, on a repeated examination of the specimens in my possession, I must refer them all to *X. rhabdocephalus* *. This is a very common species in Bahia. Several young examples may be frequently found together. It is very lively and courageous, and, on account of its broad head and rather vicious appearance, much dreaded by the Brazilians, who give it the name of *Surucucú*. In order to distinguish *Lachesis mutus* from it, they call the latter *Surucucú bico de jacca*, from the resemblance of its strongly keeled scales to the prominences on the Jackfruit—the fruit of the *Artocarpus integrifolia*. This *Xenodon* is very voracious. Recently I had a young living specimen of it in the same cage with one of *Liophis conirostris*, and gave them two young *Cystignathi fusci* for their food. The *Xenodon* immediately seized one of the frogs by the snout ; but the *Liophis* did not succeed so well with the other frog, and found it easier to seize the *Xenodon's* prey by the hind legs. A struggle commenced, in which the *Xenodon* had better hold of the frog than the *Liophis*, and, the latter being obstinate and not inclined to relinquish its hold, began to encompass its head with its wide jaws. It became evident that the *Liophis* would have to share the fate of its intended victim. As it was the first living specimen of its species I had been able to obtain, I was very anxious to save its life ; so I cut the *Xenodon* in two with a knife, and the *Liophis* quickly passed through the anterior segment of the *Xenodon's* body with the frog. The *Liophis* was returned to its cage, when it directly seized hold of the other frog, and swallowed it undisturbed. It had along its head, neck, and anterior part of the body minute wounds from the *Xenodon's* teeth, which bled freely while it was engaged in swallowing the frog ; but it has done quite well since, and I hope it may arrive safely at the Gardens of the Society.

It is surprising how broad and flat a *Xenodon rhabdocephalus* makes itself at times, chiefly whilst basking in the sun. This is owing, I suppose, to a peculiar conformation and attachment of its ribs, which I have not yet examined. The species of *Liophis* never make themselves so broad. A *Xenodon* can pass a crevice which is exceedingly small in proportion to the width of its head,—one smaller than that which a *Liophis* with a much thinner body can pass.

* One specimen of *X. severus* in the Collection of the British Museum is mentioned in the Catalogue as derived from Bahia.

Of the interesting species *Xenodon colubrinus*, so well established and happily named by Dr. Albert Günther, I received several live specimens from Ilhéos. When irritated, it rapidly strikes the ground with its tail—a habit I have also noticed in *Spilotes variabilis*, *S. pœcilostoma*, *S. corais*, and in *Coryphodon pantherinus*. In its habits it resembles also *X. rhabdocephalus*; but in the form of its head it shows great similarity to the members of the next family—that of *Colubridæ*. In this species I first noticed a bright white spot or groove on the tip of each scale. Recently I have become indebted to Dr. A. Günther's kindness for a perusal of Prof. Reinhardt's interesting paper on these curious spots or depressions*. Reinhardt discovered them during his stay in Brazil, about thirteen years ago, in a living specimen of *Philodryas Olfersii*—a snake which has not yet been noticed by me. After his return to Europe he found them in preserved specimens of many other Ophidians, and has tried to vindicate for them the importance of a classifying character, which they undoubtedly possess. Reinhardt mentions that these depressions had been noticed before by Wagler in species of *Xenodon*, by Holbrook in *Coluber alleghaniensis*, and by Günther in West Indian species of *Dromicus*, but that they had been overlooked by other herpetologists. In *Xenodon colubrinus* they are remarkably distinct, clearly perceptible with the naked eye; they are circular, and placed very near the tip of the scales.

The family *Colubridæ* is represented by two genera in this province —*Spilotes* and *Coryphodon*.

Coryphodon pantherinus is exceedingly common. The grooves on its scales are double, as in all the other species of this family, with the exception of *Zamenis Dahlii*, Fitz., which, according to Reinhardt, has scales with a single groove. Reinhardt, however, observes that this Ophidian had been classed by Schlegel with the *Psammophidæ*, which have scales provided with a single groove.

Of the genus *Spilotes* I have noticed *S. corais*, *S. pœcilostoma*, and *S. variabilis*.

They are very similar in their habits, very bold; and the most undaunted is perhaps *S. corais*. It is called by the Brazilians "*Papapinto*," from its averred predilection for chickens, of which circumstance I have never been able to satisfy myself. It frequents the neighbourhood of rivers, where it often strikes terror into the black washerwomen occupied at their calling, by approaching and running after them. I have been told strange stories about its creeping on to the beds of sleeping women who nurse, and sucking at their breasts. It may be that, like many other reptiles, it is very fond of milk; and this may account in part for such tales, which have been current in other countries also. *S. corais* has generally seventeen rows of scales; but I have seen several specimens with only fifteen rows. One very large specimen from Caravellas in my possession, which measures 8′, has nineteen rows of scales. The other two species of *Spilotes* are both called "*Cainana*;" the

* See p. 255 of our present Number.

grooves on their scales differ from those of *S. corais* in being larger and oblong or elliptical. I was on the point of referring a specimen of *S. corais*, with fifteen rows of scales, to *Herpetodryas dendrophis*, on account of the slender form of its head; but the presence of the two depressions on each of its scales assisted me in its correct determination. With regard to *S. variabilis*, I must state that the specimens examined by me, which were all adults, had no loreal shield.

The *Dryadidæ* I have met with belong to two genera, *Herpetodryas* and *Philodryas*. *Herpetodryas carinatus* is one of the most common snakes in this province. The Brazilians call it, as well as all the other slender species of snakes, "*Cipo*," which signifies the stem or a stick of a creeping-plant. Before I had read Schlegel's 'Essay,' I referred all the specimens of *Herpetodryas* in which I did not detect any keeled scales to *H. fuscus*, this being the only distinctive character given in Günther's Catalogue. When I found that Schlegel had not admitted *H. fuscus* as a separate species, I submitted all my specimens (several dozens) to a closer examination, and found that there was not a single one in which at least very slight traces of keels were not to be found in some scales; so that I feel inclined to follow Schlegel, and to consider my specimens as belonging to one species. According to Reinhardt, the scales of *Herpetodryas carinatus* are without any groove,—an observation with which I cannot agree, having found grooved scales in all my specimens. In some specimens they were found, indeed, only on a few scales of the neck near the head; others had them on the two middle rows of keeled scales. The occurrence of these grooves in *Herpetodryas** is very interesting, particularly because they are single, and not double as is generally the case in keeled scales. They are placed near to the inner edge, and at the point of junction of the distal with the middle third of the scale. They are proportionately smaller in larger specimens. The largest specimen noticed by me is 5 feet 7 inches long.

Philodryas viridissimus is not quite so common as the last species. The largest specimen I have seen measured 4 feet. Reinhardt found two grooves in the scales of this snake. After a careful search, I cannot find more than one groove at the tip of the scales. Some scales on the tail have certainly two grooves, evidently in consequence of the confluence of two scales.

Philodryas Schottii.—I obtained a single specimen in a bad state.

Of the family of *Dendrophidæ* I have seen a single specimen of *Ahætulla liocerca*†: it must be a very beautiful snake. It is said to be exceedingly lively; and this, with its proportionately long teeth, may be the cause of its being considered dangerous by the Brazilians.

* I have examined several specimens of this species: I was unable to find these grooves in *H. carinatus*; one specimen of *H. fuscus* showed a single groove on a few scales on the neck.—A. G.

† I received it from Mr. Christopher Gayleard, whose unceasing kindness in assisting me to collect specimens I am happy to acknowledge.

The family of *Dryophidæ* has two representatives in Bahia, belonging to the genus *Dryophis*—*D. argentea* and *D. acuminata*. The former is very scarce (I have seen only one specimen in Mr. C. M. Föppel's collection), the latter very common.

MISCELLANEOUS.

On some small Pits with which the Scales of certain Ophidia *are adorned.* By J. Reinhardt.

It is about twelve years since, during his residence in Brazil, M. Reinhardt observed small whitish and brilliant points scattered over the body of the green snake, common in that country, to which Lichtenstein gave the name of *Coluber Olfersii*, and which Wagler has adopted as the type of his genus *Philodryas*. Careful examination showed M. Reinhardt that each scale of this snake is furnished, close to its posterior extremity, with a small depression or pit, of which the brilliancy is greater than that of the rest of the scale. These impressions cease at a little distance from the point of the tail. They are also wanting in the anterior part of the body, on the two rows of scales nearest to the ventral plates, and even, further back, on three or four ventral rows. At the root of the tail there are not more than six rows of scales furnished with pits; this number soon falls to three, and a few inches further on there are only two.

When the epidermis is carefully removed from some of the scales furnished with pits, and examined with the lens, it is found that no opening exists corresponding with the pits. The epidermis is only very delicate at this point, and as transparent as glass. Nor is any aperture to be found in the pit of the cutis, and consequently there is no canal or cavity leading into the interior of the scale.

M. Reinhardt was naturally led to compare other Ophidia with the *Philodryas* with regard to this peculiarity. Amongst 191 species examined up to this time, he has found pits in 106. The frequency of these little depressions is undoubtedly still greater than might be assumed from the above numbers. In fact, M. Reinhardt has examined comparatively a greater number of species of groups not furnished with pits than of those which are provided with them.

In many species the pits are as large as, or larger than, in *Philodryas*, and then they are easily recognizable by the naked eye. Often, likewise, they are smaller, and cannot well be distinguished except with the lens. Sometimes there is only one upon each scale, sometimes there are two. In the *Ophidia* with smooth scales, the species with one and those with two pits are nearly equal in number. In the *Ophidia* with keeled scales, the pits, when they exist, are almost always two in number on each scale, placed one on each side of the keel. Some species, however, have only one.

The function of the pits is still unknown. They are not connected with any gland, and never constitute a sexual difference. They may

nevertheless be employed as a check upon herpetological systems. The classification of Duméril and Bibron, founded essentially upon the dentition, establishes groups which by no means coincide with the absence, presence, or number of pits on the scales. M. Reinhardt considers this classification as essentially artificial. He admits that within certain limits the dentition has an incontestable systematic importance, but he does not think that it can be regarded as a character ruling all others. All the attempts hitherto made at classifying Serpents in accordance with the dentition alone have led to the approximation of very diverse species, and to the separation of allied forms. On the other hand, M. Reinhardt considers the groups established by Schlegel under the name of genera as very natural. He thinks that the system of that author is the best in the present state of science, provided the modifications proposed in 1858 by Dr. Günther, in the 'Catalogue of Ophidia in the British Museum,' be adopted. There are, no doubt, exceptions; but we find entire families with two pits, others with only one, and others which are destitute of them. Moreover, the families in which all the species exhibit a uniformity of character in this respect are generally very natural families.

M. Reinhardt himself does not ascribe an exaggerated importance to the pits in question. He does not dream of making use of them as the basis of a classification. But it is interesting to find, in a peculiarity apparently so useless, a confirmation of the establishment of certain families; and it may also serve occasionally to determine the probable affinity of an Ophidian whose position is doubtful.—*Bibl. Univ.* Jan. 20, 1862, *Bull. Sci.* p. 78.

Note on Callithamnion Rothii. By G. S. Brady.

The influence of external circumstances in introducing changes of species, and the range of altered conditions which individual species are qualified to bear without change or death, is a matter which seems as yet to be very imperfectly understood, notwithstanding that it lies near the root of much that has recently been written respecting the succession of life on the earth. Viewed in this light, the following remarks on one of our native Algæ may not be without interest.

In February of last, and June of the present year, I observed that certain stones near the mouth of a cave, a little north of Hawthorne Dene, were covered with a red velvety fleece, which on examination proved to be *Callithamnion Rothii*, one of the smallest of the Rhodosperms, its filaments seldom much exceeding half an inch in length. The stones thus coated with the *Callithamnion* were exposed to a heavy dripping of fresh water from the roof of the cave (not merely a scanty fall of drops, few and far between, but a copious pelting, sufficient to wet one very unpleasantly while gathering specimens), and beyond the area of this dripping the plant did not extend. The mouth of the cave is not very far below high-water mark; and I should judge that in this position the plant must be exposed to